In the Claims

- 1. (Original) A medical article comprising an implantable substrate having a coating, the coating including a polymeric product of a reaction between a first reagent, a second reagent, and a third reagent, wherein:
- (a) the first reagent is selected from a group consisting of compounds having formulae (1), (2), (3), and (4):

$$\begin{array}{ccc}
O & O \\
\parallel & \parallel & \parallel \\
HO-R_2-C-NH-Y-NH-C-R_2-OH
\end{array}$$
(2)

$$H_2N-Y-NH_2 \tag{4}$$

(b) the second reagent is selected from a group consisting of compounds having formulae (5), (6), (7), and (8):

$$HO-R_4-OH$$
 (7)

$$H_2N-R_4-NH_2$$
 (8)

(c) the third reagent is a dicarboxylic acid having the formula (9):

wherein:

R₁ is hydrogen, methyl, iso-propyl, sec-butyl; iso-butyl, or benzyl group;

R₂ is methylene, methylmethylene, n-propylene, iso-propylene, ethylmethylene, nbutylene, iso-butylene, sec-butylene, or n-amylene group;

 R_3 is a straight chained or branched aliphatic alkylene group C_nH_{2n} , wherein n is an integer between 2 and 12;

R₄ is a moiety derived from a compound selected from a group consisting of poly(ethylene glycol), poly(propylene glycol), random poly(ethylene glycol-co-propylene glycol), poly(ethylene glycol)-block-poly(propylene glycol), hyaluronic acid, poly(2-hydroxyethyl methacrylate), poly(3-hydroxypropylmethacrylamide), poly(styrene sulfonate), poly(vinyl pyrrolidone), and cellulosics;

X is a straight chained or branched aliphatic alkylene group C_nH_{2n} , wherein n is an integer between 2 and 12; and

Y is a straight chained or branched aliphatic alkylene group C_nH_{2n}, wherein n is 1, 2, or 5.

- 2. (Original) The medical article of Claim 1, wherein the implantable substrate is a stent.
- (Original) The medical article of Claim 1, wherein the compound of formula (1) is a diol-diamine, the diol-diamine is a product of condensation of an amino acid and a diol.
- (Original) The medical article of Claim 3, wherein the amino acid has the formula
 (10):

$$H_2N$$
-CHR₁-COOH. (10)

- (Original) The medical article of Claim 3, wherein the amino acid is selected from a group consisting of glycine, alanine, valine, isoleucine, leucine, and phenyl alanine.
- 6. (Original) The medical article of Claim 3, wherein a diol is selected from a group consisting of ethylene glycol, 1,3-propanediol, 1,4-butane diol, 1,5-pentanediol, 1,6-hexanediol, 1,7-heptanediol, 1,8-octanediol, 1,9-nonanediol, 1,10-decanediol, 1,11-undecanediol, and 1,12-dodecanediol.
- (Original) The medical article of Claim I, wherein the compound of formula (2) is an
 amidediol, the amidediol is a product of condensation of a hydroxy acid and a diamine.
- (Original) The medical article of Claim 7, wherein the hydroxy acid has the formula
 (11):

$$HO-R_2-COOH$$
. (11)

- (Original) The medical article of Claim 7, wherein the hydroxy acid is selected from a
 group consisting of glycolic acid, lactic acid, β-hydroxybutyric acid, α-hydroxyvaleric acid, and
 ε-hydroxycaproic acid.
- (Original) The medical article of Claim 7, wherein the diamine is selected from a group consisting of putrescine, 1,2-ethanediamine, and cadavarene.
- 11. (Original) The medical article of Claim 1, wherein the compound of formula (3) is selected from a group consisting of ethylene glycol, 1,3-propanediol, 1,4-butane diol, 1,5-pentanediol, 1,6-hexanediol, 1,7-heptanediol, 1,8-octanediol, 1,9-nonanediol, 1,10-decanediol, 1,11-undecanediol, and 1,12-dodecanediol.

- (Original) The medical article of Claim 1, wherein the compound of formula (4) is selected from a group consisting of putrescine, 1,2-ethanediamine, and cadavarene.
- 13. (Original) The medical article of Claim 1, wherein the compound of formula (5) is a PEG-diester-diamine conjugate, the conjugate is a product of condensation of an amino acid and poly(ethylene glycol).
- 14. (Original) The medical article of Claim 13, wherein the amino acid has the formula (10):

$$H_2N$$
— CHR_1 — $COOH$. (10)

- 15. (Original) The medical article of Claim 13, wherein the amino acid is selected from a group consisting of glycine, alanine, valine, isoleucine, leucine, phenyl alanine, tyrosine, serine, and glutamic acid.
- 16. (Original) The medical article of Claim 1, wherein the compound of formula (6) is a PEG-amidediol conjugate, the conjugate is a product of condensation of a hydroxy acid and PEG-diamine.
- 17. (Original) The medical article of Claim 16, wherein the hydroxy acid has the formula (11):

$$HO-R_2$$
-COOH. (11)

18. (Original) The medical article of Claim 17, wherein the hydroxy acid is selected from a group consisting of glycolic acid, lactic acid, β -hydroxybutyric acid, α -hydroxyvaleric acid, and ϵ -hydroxycaproic acid.

 (Original) A medical article comprising an implantable substrate having a coating, the coating including a copolymer having a general formula (12) or (13):

$$-[M-P]_m-[M-Q]_n-$$
 (12)

$$-[M_1-P]_0-$$
(13)

wherein:

M is a moiety represented by the structure having the formula (14)

$$\begin{array}{cccc}
O & O \\
\parallel & \parallel \\
-C-R, -C-
\end{array}$$
(14)

P is a moiety selected from a group consisting of structures having the formulae (15), (16), (17), and (18):

$$-0-X-0-$$
 (17)

$$-NH-Y-NH-$$
 (18)

Q is a moiety selected from a group consisting of structures having the formulae (19), (20), and (21)

$$-O-Z-O-$$
, and $-NH-Z-NH-$ (21)

M₁ is a moiety represented by the structure having the formula (22):

R₁ is hydrogen, methyl, iso-propyl, sec-butyl; iso-butyl, or benzyl group;

R₂ is methylene, methylmethylene, n-propylene, iso-propylene, ethylmethylene, nbutylene, iso-butylene, sec-butylene, or n-amylene group;

 $R_3 \ is \ a \ straight \ chained \ or \ branched \ aliphatic \ alkylene \ group \ C_nH_{2n}, \ wherein \ n \ is \ an \\ integer \ between \ 2 \ and \ 12;$

X is a straight chained or branched aliphatic alkylene group C_nH_{2n} , wherein n is an integer between 2 and 12;

Y is a straight chained or branched aliphatic alkylene group C_nH_{2n}, wherein n is 1, 2, or 5;

Z is a moiety derived from a compound selected from a group consisting of poly(ethylene glycol), poly(propylene glycol), random poly(ethylene glycol-co-propylene glycol), poly(ethylene glycol)-block-poly(propylene glycol), hyaluronic acid, poly(2-hydroxyethyl methacrylate), poly(3-hydroxypropylmethacrylamide), poly(styrene sulfonate), poly(vinyl pyrrolidone, and cellulosics; and

m, n, and p are integers where the value of m is between 5 and 1,800, the value of n is between 1 and 800 and the value of p is between 4 and 1,500.

20. (Original) The medical article of Claim 19, wherein the polymer is selected from a group consisting of copolymers of formulae (23), (24), (25), (26), (27), (28), (29), (30), (31), (32), (33), (34), (35), (36), (37), (38), (39), (40), (41), (42), and (43):

(23)

$$\begin{bmatrix} 0 & 0 & CH_3 & 0 &$$

(24)

$$\begin{bmatrix} CH_{0}-CH-CH_{0} & CH_{0}-CH-CH_{1} \\ CH_{0}-CH-CH_{0} & CH_{0}-CH-CH_{1} \\ CH_{0}-CH-CH_{0} & CH_{0}-CH-CH_{1} \\ CH_{0}-CH-CH_{0} & CH_{0}-CH-CH_{0} \\ CH_{0}-CH-CH_{0}-CH-CH_{0} \\ CH_{0}-CH-CH_{0} & CH_{0}-CH-CH_{0} \\ CH_{0}-CH-CH_{0}-CH-CH_{0} \\ CH_{0}-CH-CH_{0}-CH-CH_{0}-CH-CH_{0} \\ CH_{0}-CH-CH_{0}-CH-CH_{0} \\ CH_{0}-CH-CH_{0}-CH-CH_{0} \\ CH_{0}-CH-C$$

(25)

(26)

$$\begin{bmatrix} CH_3-CH-CH_3 & CH_3-CH-CH_3 \\ O & CH_2 & O & CH_2 \\ -C-CH_2 \end{bmatrix}_g - NH-CH-C-O-CH_2 \\ -C-CH_2 \end{bmatrix}_g - C-CH-NH \\ -C-CH-C-NH-PEC_{koo}-NH-C-CH-O \\ -C-CH-O-NH-C-CH-O \\ -C-CH-O-NH-C-CH-O-D \\ -C-CH-O-D \\ -C-CH-O-NH-C-CH-O-D \\ -C-CH-O-D \\ -C$$

(27)

$$\begin{bmatrix} O & CH_3 & O & CH_3 \\ -C & CH_2 & C & CH - C - NH + CH_2 + NH - C - CH - O \end{bmatrix}_{m_1} \begin{bmatrix} O & CH_3 & O & CH_3 \\ -C & CH_2 & C & CH - C - NH - PEG_{MO} - NH - C - CH - O \end{bmatrix}_{m_2} \begin{bmatrix} O & CH_3 & O & O & CH_3 \\ -C & CH_2 & C & CH - C - NH - PEG_{MO} - NH - C - CH - O \end{bmatrix}_{m_3} \begin{bmatrix} O & CH_3 & O & O & CH_3 \\ -C & CH_2 & C & CH_3 & C & CH_3 & C \\ -C & CH_2 & C & CH_3 & C & CH_3 & C & CH_3 \\ -C & CH_2 & C & CH_3 & C & CH_3 & C & CH_3 \\ -C & CH_2 & C & CH_3 & C & CH_3 & C & CH_3 \\ -C & CH_2 & C & CH_3 & C & CH_3 & C & CH_3 \\ -C & CH_3 & C & CH_3 & C & CH_3 & C & CH_3 \\ -C & CH_3 & C & CH_3 & C & CH_3 & C & CH_3 \\ -C & CH_3 & C & CH_$$

28)

$$\begin{bmatrix} O & CH_1 & CH_2 - CH_2 & CH_3 - CH_2 - CH_3 \\ O & CH_1 & O & CH_3 \\ C - CH_2 & C - CH_1 - CH_2 & CH_2 - CH_2 \\ O & CH_2 & O & O & CH_3 \\ O & CH_2 & O & O & CH_3 \\ O & CH_3 & C - CH_2 - CH_3 - CH_2 \\ O & CH_3 & C - CH_2 - CH_3 - CH_3 \\ O & CH_3 & C - CH_2 - CH_3 - CH_3 - CH_3 \\ O & CH_3 & O & O & CH_3 \\ O & CH_3 & O & O \\ O & CH_3 & O \\ O & CH_3 & O & O$$

(29)

$$\begin{bmatrix} \bigcirc & \bigcirc & CH_3 & \bigcirc & CH_3 & \bigcirc & CH_3 \\ C-CH_2 \end{bmatrix}_{\frac{1}{8}}C-O-CH-C-NH \\ -CH_2 \end{bmatrix}_{\frac{1}{8}}NH-C-CH-O \\ -CH_2 \end{bmatrix}_{\frac{1}{8}}C-C+CH_2 \end{bmatrix}_{\frac{1}{8}}C-O-PEG_{300}-O \\ -O-D+CH_3 \\ -O-D+CH_$$

(30)

$$\begin{bmatrix} 0 & CH_3 & 0 & CH_3 \\ -C-CH_2 & C-O-CH-C-NH \\ -CH_2 & -NH-C-CH-O \end{bmatrix} \begin{bmatrix} 0 & CH_3 \\ -C-CH_2 & C-NH-PEG_{600} \\ -C-CH_2 & -NH-PEG_{600} \\ -C-CH_2 & -$$

(31)

(32)

(34)

$$- \underbrace{\begin{bmatrix} CH_3 - CH - CH_3 & CH_3 - CH - CH_3 \\ O & CH_2 & O & CH_3 \\ C - CH_2 - \frac{1}{8}C - NH - CH_2 - \frac{1}{4}NH \end{bmatrix}_{m} \underbrace{\begin{bmatrix} CH_3 - CH - CH_3 \\ O & CH_2 & O & CH_3 \\ C - CH_2 - \frac{1}{8}C - NH - CH - C - O - PEG_{300} - O - C - CH - NH - \frac{1}{n}C - CH_2 - CH_3 - CH_$$

(35)

$$= \underbrace{ \begin{bmatrix} 0 & 0 & 0 & 0 \\ 0 & C + C + 1 \end{bmatrix}_{8}^{2} C - NH + C + 1 \end{bmatrix}_{8}^{2} NH + \underbrace{ \begin{bmatrix} 0 & 0 & C + 1 \\ 0 & C + C \end{bmatrix}_{8}^{2} C - C + C - NH - PEG_{000} - NH - C - C + C - O - NH - PEG_{000} - NH - C - C + C - O - NH - PEG_{000} - NH - C - C + O - N$$

(36)

(37)

(38)

$$\begin{bmatrix} O & O & CH_3 & O & O & CH_3 \\ II & II & II & II & II \\ C - PEG_{1000} - C - O - CH - C - NH + CH_2 + NH - C - CH - O + NH + CH_2 +$$

(39)

$$- \begin{bmatrix} 0 & 0 & CH_3 & 0 & CH_3 & CH_3$$

(40)

(41)

(42)

11

$$= \begin{bmatrix} 0 & CH_1 & O & CH_2 & CH_3 & O & CH_3$$

(43)

- 21. (Original) A method for fabricating a medical article, the method including synthesizing a copolymer and forming a coating based on the copolymer on at least a portion of an implantable substrate, the synthesizing of the copolymer including reacting a first reagent with a second reagent and with a third reagent, wherein:
- (a) the first reagent is selected from a group consisting of compounds having formulae (1),(2), (3), and (4):

$$H_2N-Y-NH_2 \tag{4}$$

(b) the second reagent is selected from a group consisting of compounds having formulae (5), (6), (7), and (8):

$$HO-R_2-C-NH-R_4-NH-C-R_2-OH$$

$$HO-R_4-OH$$
 (7)

$$H_2N-R_4-NH_2$$
 (8)

(c) the third reagent is a dicarboxylic acid having the formula (9):

wherein:

R₁ is hydrogen, methyl, iso-propyl, sec-butyl; iso-butyl, or benzyl group;

R₂ is methylene, methylmethylene, n-propylene, iso-propylene, ethylmethylene, nbutylene, iso-butylene, sec-butylene, or n-amylene group;

 R_3 is a straight chained or branched aliphatic alkylene group C_nH_{2n} , wherein n is an integer between 2 and 12;

R₄ is a moiety derived from a compound selected from a group consisting of poly(ethylene glycol), poly(propylene glycol), random poly(ethylene glycol-co-propylene glycol), poly(ethylene glycol)-block-poly(propylene glycol), hyaluronic acid, poly(2-hydroxyethyl methacrylate), poly(3-hydroxypropylmethacrylamide), poly(styrene sulfonate), poly(vinyl pyrrolidone), and cellulosics;

X is a straight chained or branched aliphatic alkylene group C_nH_{2n} , wherein n is an integer between 2 and 12;

Y is a straight chained or branched aliphatic alkylene group C_nH_{2n} , wherein n is 1, 2, or 5.

22. (Original) The method of Claim 21, wherein the implantable substrate is a stent.

- (Original) The method of Claim 21, wherein the molar ratio between the first reagent, the second reagent, and the third reagent is about 1:1:2.
- 24. (Original) The method of Claim 21, wherein the compound of formula (1) is a diol-diamine, the diol-diamine is a product of condensation of an amino acid and a diol.
 - 25. (Original) The method of Claim 24, wherein the amino acid has the formula (10):

$$H_0N$$
— CHR_1 — $COOH$. (10)

- 26. (Original) The method of Claim 24, wherein the amino acid is selected from a group consisting of glycine, alanine, valine, isoleucine, leucine, and phenyl alanine.
- 27. (Original) The method of Claim 24, wherein a diol is selected from a group consisting of ethylene glycol, 1,3-propanediol, 1,4-butane diol, 1,5-pentanediol, 1,6-hexanediol, 1,7-heptanediol, 1,8-octanediol, 1,9-nonanediol, 1,10-decanediol, 1,11-undecanediol, and 1,12-dodecanediol.
- 28. (Original) The method of Claim 21, wherein the compound of formula (2) is an amidediol, the amidediol is a product of condensation of a hydroxy acid and a diamine.
- 29. (Original) The method article of Claim 28, wherein the hydroxy acid has the formula (11):

$$HO-R_2-COOH.$$
 (11)

30. (Original) The method of Claim 28, wherein the hydroxy acid is selected from a group consisting of glycolic acid, lactic acid, β-hydroxybutyric acid, α-hydroxyvaleric acid, and ←-hydroxycaproic acid.

- (Original) The method of Claim 28, wherein the diamine is selected from a group consisting of putrescine. 1.2-ethanediamine, and cadavarene.
- 32. (Original) The method of Claim 21, wherein the compound of formula (3) is selected from a group consisting of ethylene glycol, 1,3-propanediol, 1,4-butane diol, 1,5-pentanediol, 1,6-hexanediol, 1,7-heptanediol, 1,8-octanediol, 1,9-nonanediol, 1,10-decanediol, 1,11-undecanediol, and 1,12-dodecanediol.
- (Original) The method of Claim 21, wherein the compound of formula (4) is selected from a group consisting of putrescine, 1,2-ethanediamine, and cadavarene.
- 34. (Original) The method of Claim 21, wherein the compound of formula (5) is a PEGdiester-diamine conjugate, the conjugate is a product of condensation of an amino acid and poly(ethylene glycol).
 - 35. (Original) The method of Claim 34, wherein the amino acid has the formula (10):

$$H_2N$$
-CHR₁-COOH. (10)

- 36. (Original) The method of Claim 34, wherein the amino acid is selected from a group consisting of glycine, alanine, valine, isoleucine, leucine, phenyl alanine, tyrosine, serine, and glutamic acid.
- 37. (Original) The method of Claim 21, wherein the compound of formula (6) is a PEGamidediol conjugate, the conjugate is a product of condensation of a hydroxy acid and PEGdiamine.
 - 38. (Original) The method of Claim 37, wherein the hydroxy acid has the formula (11):

$$HO-R_2-COOH.$$
 (11)

39. (Original) The method of Claim 37, wherein the hydroxy acid is selected from a group consisting of glycolic acid, lactic acid, β-hydroxybutyric acid, α-hydroxyvaleric acid, and ε-hydroxycaproic acid.

40. (Original) A method for fabricating a medical article, the method including synthesizing a copolymer and forming a coating based on the copolymer on at least a portion of an implantable substrate, wherein the copolymer has a general formula (12) or (13):

$$-[M-P]_{m}-[M-Q]_{n}-$$
 (12)

$$-[\mathbf{M}_1 - \mathbf{P}]_{\mathbf{p}} - \tag{13}$$

wherein:

M is a moiety represented by the structure having the formula (14)

P is a moiety selected from a group consisting of structures having the formulae (15), (16), (17), and (18):

$$-0-X-0-$$
 (17)

$$-NH-Y-NH-$$
 (18)

Q is a moiety selected from a group consisting of structures having the formulae (19), (20), and (21)

M₁ is a moiety represented by the structure having the formula (22):

R₁ is hydrogen, methyl, iso-propyl, sec-butyl; iso-butyl, or benzyl group;

R₂ is methylene, methylmethylene, n-propylene, iso-propylene, ethylmethylene, nbutylene, iso-butylene, sec-butylene, or n-amylene group;

 R_3 is a straight chained or branched aliphatic alkylene group C_nH_{2n} , wherein n is an integer between 2 and 12;

X is a straight chained or branched aliphatic alkylene group C_nH_{2n} , wherein n is an integer between 2 and 12;

 $\label{eq:Y} Y \mbox{ is a straight chained or branched aliphatic alkylene group C_nH_{2n}, wherein n is $1,2$, or 5; and n is $1,2$, or 5.}$

Z is a moiety derived from a compound selected from a group consisting of poly(ethylene glycol), poly(propylene glycol), random poly(ethylene glycol-co-propylene glycol),

poly(ethylene glycol)-block-poly(propylene glycol), hyaluronic acid, poly(2-hydroxyethyl methacrylate), poly(3-hydroxypropylmethacrylamide), poly(styrene sulfonate), poly(vinyl pyrrolidone, and cellulosics; and

m, n, and p are integers where the value of m is between 5 and 1,800, the value of n is between 1 and 800 and the value of p is between 4 and 1,500.

41. (Original) The method of Claim 40, wherein the copolymer is selected from a group consisting of copolymers of formulae (23), (24), (25), (26), (27), (28), (29), (30), (31), (32), (33), (34), (35), (36), (37), (38), (39), (40), (41), (42), and (43):

$$= \underbrace{ \begin{bmatrix} CH_{2} - CH - CH_{3} & CH_{3} - CH - CH_{3} & CH_{3} - CH - CH_{3} & CH_{3} - CH - CH_{3} \\ CH_{3} - CH_{3} \\ CH_{3} - CH_{3} \\ CH_{3} - CH_{3} -$$

(23)

$$\begin{bmatrix} O & CH_{1} & O & CH_{2} & O & CH_{3} & O & CH_{4} & O & CH_{4} & O & CH_{5} & O$$

(24)

$$\begin{bmatrix} CH_{0}-CH_{0}-CH_{0} & CH_{0}-CH_{0}-CH_{0} \\ O & CH_{0}-CH_{0}-CH_{0} \\ C-NH_{0}-CH_{0}-CH_{0}-CH_{0}-CH_{0} \\ C-NH_{0}-CH_{0}-CH_{0}-CH_{0}-CH_{0} \\ C-NH_{0}-CH_{0}-CH_{0}-CH_{0} \\ C-NH_{0}-CH_{0}-CH_{0}-CH_{0} \\ C-NH_{0}-CH_{0}-CH_{0}-CH_{0} \\ C-NH_{0}-CH_{0}-CH_{0}-CH_{0} \\ C-NH_{0}-CH_{0}-CH_{0} \\ C-NH_{0}-CH_{0}-CH_{0} \\ C-NH_{0}-CH_{0}-CH_{0} \\ C-NH_{0}-CH_{0}-CH_{0} \\ C-NH_{0}-CH_{0}-CH_{0} \\ C-NH_{0}-CH_{0}-CH_{0} \\ C-NH_{0}-CH_{0} \\ C-NH_{0}-CH_{0}-CH_{0} \\ C-NH_{0}-CH_{0} \\ C-NH$$

(25)

(26)

$$\begin{bmatrix} CH_{3}-CH-CH_{3} & CH_{3}-CH-CH_{3} \\ O & CH_{3} & O & CH_{3} \\ C+CH_{3} & C-NH-CH-CC-O\{CH_{3}^{2}\}_{O}-C-CH-NH_{3}^{2} \end{bmatrix} & CH_{3} & CH_{3} & O & CH_{3} \\ O & CH_{3} & O & CH_{3} & O & CH_{3} \\ C+CH_{3} & C-O-CH-C-NH-PEC_{koo}-NH-C-CH-O \\ \end{bmatrix}_{n}$$

27)

$$\begin{bmatrix} 0 & CH_3 & O & CH_3 & O & CH_2 \\ -C + CH_2 + C & CH_2 + C & CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C \\ -C + CH_2 + C & CH_2 + C & CH_2 + C \\ -C + C + C & CH_2 + C \\ -C + C + C + C \\ -C + C + C \\ -C + C + C \\ -C + C \\ -C + C \\ -C + C + C \\ -C + C \\ -C$$

28)

$$\begin{bmatrix} O & CH_1 & CH_2 - CH_3 & CH_3 - CH_3 - CH_3 \\ O & CH_3 & O & CH_4 \\ C - CH_2 - CH_3 & C & CH_4 \\ C - CH_2 - CH_3 & C & CH_3 \\ C - CH_2 - CH_3 & C & CH_4 \\ C - CH_2 - CH_3 & C & CH_4 \\ C - CH_2 - CH_3 & C & CH_4 \\ C - CH_2 - CH_3 & C & CH_4 \\ C - CH_2 - CH_3 & C & CH_4 \\ C - CH_2 - CH_3 & C & CH_4 \\ C - CH_2 - CH_3 & C & CH_4 \\ C - CH_2 - CH_3 & C & CH_4 \\ C - CH_2 - CH_3 & C & CH_4 \\ C - CH_2 - CH_3 & C & CH_4 \\ C - CH_2 - CH_3 & C & CH_4 \\ C - CH_2 - CH_3 & C & CH_4 \\ C - CH_2 - CH_3 & C & CH_4 \\ C - CH_2 - CH_4 & C & CH_4 \\ C - CH_2 - CH_4 & C & CH_4 \\ C - CH_2 - CH_4 & C & CH_4 \\ C - CH_2 - CH_4 & C & CH_4 \\ C - CH_2 - CH_4 & C & CH_4 \\ C - CH_2 - CH_4 & C & CH_4 \\ C - CH_2 - CH_4 & C & CH_4 \\ C - CH_4 - CH_4 \\ C - CH_4$$

(29)

$$\begin{bmatrix} O & O & CH_3 & O & CH_3 \\ -C - CH_2 \end{bmatrix}_{\frac{1}{8}} C - O - CH - C - NH + CH_2 \end{bmatrix}_{\frac{1}{8}} NH - C - CH - O + CH_3 \\ -C - CH_2 \end{bmatrix}_{\frac{1}{8}} C - O - PEG_{300} - O + CH_3 \\ -C - CH_2 \end{bmatrix}_{\frac{1}{8}} C - O - PEG_{300} - O + CH_3 \\ -C - CH_3 \\ -C - CH_2 - CH_3 - C$$

(30)

$$\begin{bmatrix} O & C & C \\ C & C & C \\ C$$

(31)

$$\begin{array}{c} (32) \\ \hline \\ C - CH_{2} - CH_{2}$$

$$\begin{bmatrix} O & O & O \\ O & C & C \\ C$$

(34)

$$= \begin{bmatrix} O & CH_3 - CH - CH_3 & CH_3 - CH - CH_3 \\ C - CH_2 - CH_3 - CH_2 - CH_3 - CH_3$$

(35)

(36)

20

$$\begin{array}{c|c} & O & O \\ & C & C \\ \hline \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & O \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & C \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & C \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & C \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & C \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & C \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & C \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & C \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & C \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & O & C \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & C & C \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & C & C \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & C & C \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & C & C \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & C & C \\ & C & C \\ \end{array} \\ \begin{array}{c|c} & C & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\ \end{array} \\ \begin{array}{c|c} & C \\ & C \\ \end{array} \\ \begin{array}{c|c} & C \\$$

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$$\begin{bmatrix} CH_3 - CH - CH_3 & CH_3 - CH - CH_3 \\ O & O & CH_2 & O & CH_2 \\ - C - PEG_{1000} - C - NH - CH - C - O - CH_2 \\ - C - CH - NH - CH - C - O - CH_2 \\ - C - CH - NH - CH - CH_3 \\ - C - CH_3 - CH_3 \\ - CH_3 - CH_3 - CH_3 \\ - CH_$$

(38)

$$\begin{bmatrix} O & O & CH_3 & O & O & CH_3 \\ \parallel & \parallel & \parallel & \parallel & \parallel \\ C - PEG_{1000} - C - O - CH - C - NH + CH_2 + NH - C - CH - O + NH + CH_2 + CH_2$$

(39)

$$- \begin{bmatrix} 0 & 0 & CH_3 & 0 & CH_3 & CH_4 & CH_5 & CH_5$$

(40)

(41)

$$= \begin{bmatrix} GH_{2}-GH-GH_{3} & GH_{2}-GH-GH_{3} & GH_{2}-GH-GH_{3} \\ GH_{2}G & GH_{2}G & GH_{2}G \\ GH_{2}G & GH_{2}G \\ GH_{2}G & GH_{2}G & GH_{2}G \\ GH_{2}G & GH$$

(42)

$$= \begin{bmatrix} 0 & CH_1 & O & CH_2 & CH_3 & O & CH_3$$

(43)